



**WATERFORD**  
COMPLIANCE...FROM START TO SIGNAL

## Radio Frequency Emissions Compliance Report For AT&T Mobility

Site Name:	San Jose Municipal Golf Course	Site Structure Type:	Monopoles
Address:	1560 Oakland Road San Jose, California	Latitude:	37.3788028
Report Date:	January 22, 2019	Longitude:	-121.8920472
		Project:	Modification

### General Summary

AT&T Mobility has contracted Waterford Consultants, LLC to conduct a Radio Frequency Electromagnetic Compliance assessment of the proposed modification of the San Jose Municipal Golf Course site located at 1560 Oakland Road, San Jose, California. This report contains information about the radio telecommunications equipment to be installed at this site and the surrounding environment with regard to RF Hazard compliance. This assessment is based on installation designs and operational parameters provided by AT&T Mobility.

The compliance framework is derived from the Federal Communications Commission (FCC) Rules and Regulations for preventing human exposure in excess of the applicable Maximum Permissible Exposure ("MPE") limits. At any location at this site, the power density resulting from each transmitter may be expressed as a percentage of the frequency-specific limits and added to determine if 100% of the exposure limit has been exceeded. The FCC Rules define two tiers of permissible exposure differentiated by the situation in which the exposure takes place and/or the status of the individuals who are subject to exposure. General Population / Uncontrolled exposure limits apply to those situations in which persons may not be aware of the presence of electromagnetic energy, where exposure is not employment-related, or where persons cannot exercise control over their exposure. Occupational / Controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment, have been made fully aware of the potential for exposure, and can exercise control over their exposure. Based on the criteria for these classifications, the FCC General Population limit is considered to be a level that is safe for continuous exposure time. The FCC General Population limit is 5 times more restrictive than the Occupational limits.

Frequency (MHz)	Limits for General Population/ Uncontrolled Exposure		Limits for Occupational/ Controlled Exposure	
	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minutes)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minutes)
30-300	0.2	30	1	6
300-1500	f/1500	30	f/300	6
1500-100,000	1.0	30	5.0	6

f=Frequency (MHz)

In situations where the predicted MPE exceeds the General Population threshold in an accessible area as a result of emissions from multiple transmitters, FCC licensees that contribute greater than 5% of the aggregate MPE share responsibility for mitigation.

Based on the computational guidelines set forth in FCC OET Bulletin 65, Waterford Consultants, LLC has developed software to predict the overall Maximum Permissible Exposure possible at any particular location given the spatial orientation and operating parameters of multiple RF sources. These theoretical results represent worst-case predictions as emitters are assumed to be operating at 100% duty cycle.

For any area in excess of 100% General Population MPE, access controls with appropriate RF alerting signage must be put in place and maintained to restrict access to authorized personnel. Signage must be posted to be visible upon approach from any direction to provide notification of potential conditions within these areas. Subject to other site security requirements, occupational personnel should be trained in RF safety and equipped with personal protective equipment (e.g. RF personal monitor) designed for safe work in the vicinity of RF emitters. Controls such as physical barriers to entry imposed by locked doors, hatches and ladders or other access control mechanisms may be supplemented by alarms that alert the individual and notify site management of a breach in access control. Waterford Consultants, LLC recommends that any work activity in these designated areas or in front of any transmitting antennas be coordinated with all wireless tenants.

### Analysis

AT&T Mobility proposes the following installation at this location:

- Pole #1 (existing AT&T pole)
- Swap (3) existing antennas for (3) proposed antennas, typ. 1 per sector (total-3)
- Install (3) RRUS 11 B12, typ. 1 per sector (total-3)
- Pole #2 (AT&T to occupy proposed wood pole adjacent to existing pole)
- Install (3) proposed antennas @ 56' rad center, typ. 1 per sector (total-3)
- Install (3) proposed 4478 B5 RRU @ 51' rad center, typ. 1 per sector (total-3)
- Install (3) proposed antennas @ 46' rad center, typ. 1 per sector (total-3)
- Install (3) proposed 8843 RRU @ 41' rad center, typ. 1 per sector (total-3)
- Install (3) proposed 4478 B14 RRU @ 37' rad center, typ. 1 per sector (total-3)
- General / equipment area
- Remove (3) RRUS 11's from equipment area
- Remove (3) RRUS 12's from equipment area

The antennas will be mounted on a 59-foot monopoles with centerlines at 46 and 56 feet above ground level. The antennas will be oriented toward 28, 202, and 280 degrees. The radio equipment to be operated at this location is capable of a maximum of 40W per 3G channel at 850 MHz, 40W per 4G channel at 700 MHz, 40W per 4G channel at 850 MHz, 40W per 4G channel at 1900 MHz, 40W per 4G channel at 2100 MHz, and 25W per 4G channel at 2300 MHz. Other appurtenances such as GPS antennas, RRUs and hybrid cable are not sources of RF emissions. From this site, No other antennas are known to be operating in the vicinity of this site.

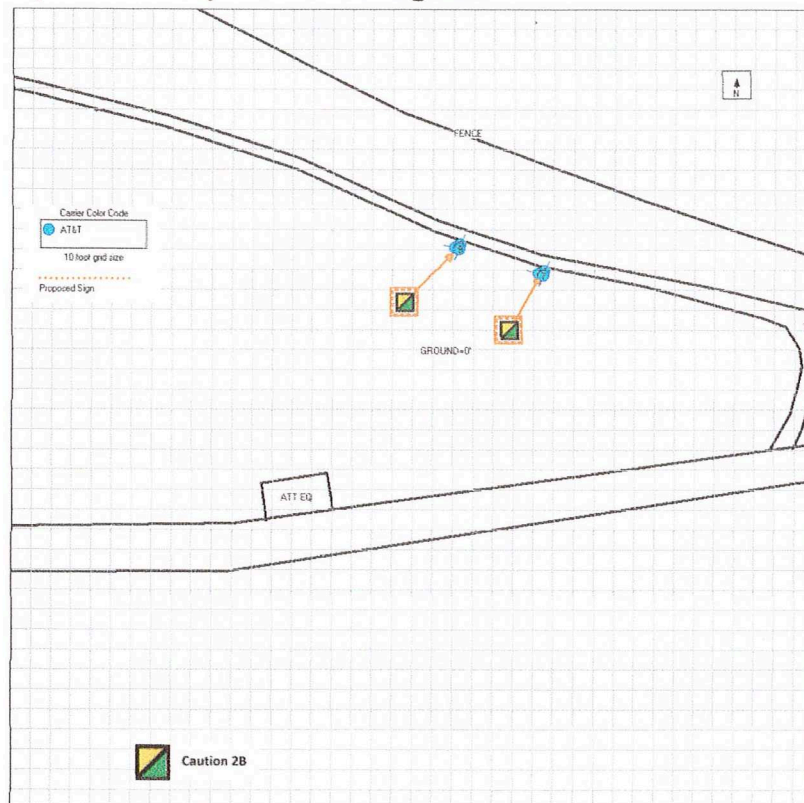
Power density decreases significantly with distance from any antenna. The panel-type antennas to be employed at this site are highly directional by design and the orientation in azimuth and mounting elevation, as documented, serve to reduce the potential to exceed MPE limits at any location other than directly in front of the antennas. For accessible areas at ground level, the maximum predicted power density level resulting from all AT&T Mobility operations is 2.3949% of the FCC General Population limits. Incident at adjacent buildings depicted in Figure 1, the maximum predicted power density level resulting from all AT&T Mobility operations is 0.4009% of the FCC General Population limits. The proposed operation will not expose members of the General Public to hazardous levels of RF energy and will not contribute to existing cumulative MPE levels on walkable surfaces at ground or at adjacent buildings by 5% of the General Population limits.

Waterford Consultants, LLC recommends posting RF alerting signage with contact information (Caution 2B) at the base of the monopoles to inform authorized climbers of potential conditions near the antennas. These recommendations are depicted in Figure 2.



Figure 1: Antenna Locations

## Compliance Requirement Diagram



### Recommendations

**AT&T Mobility  
Access locations**  
Caution 2B posted at  
the base of each pole

**Materials –  
2 Caution 2B sign**

Figure 2: Mitigation Recommendations

### Compliance Statement

Based on information provided by AT&T Mobility, predictive modeling and the mitigation measures implemented by AT&T Mobility, the installation proposed by AT&T Mobility at 1560 Oakland Road, San Jose, California will be compliant with Radiofrequency Radiation Exposure Limits of 47 C.F.R. § 1.1307(b)(3) and 1.1310. RF alerting signage and restricting access to the Monopole to authorized climbers that have completed RF safety training is required for Occupational environment compliance.

### Certification

I, David H. Kiser, am the reviewer and approver of this report and am fully aware of and familiar with the Rules and Regulations of both the Federal Communications Commissions (FCC) and the Occupational Safety and Health Administration (OSHA) with regard to Human Exposure to Radio Frequency Radiation, specifically in accordance with FCC's OET Bulletin 65. I have reviewed this Radio Frequency Exposure Assessment report and believe it to be both true and accurate to the best of my knowledge.



David H. Kiser, P. E. 2019.01.22 10:50:51 -05'00'



PHOTOSIMULATION

SET 1 - 12/17/18

POLE 1: SWAP (3) EXISTING ANTNNAS FOR (3) PROPOSED ANTENNAS  
POLE 2: INSTALL (6) PROPOSED ANTENNAS, INSTALL (9) PROPOSED RRUs

CCL03818

1560 OAKLAND RD SAN JOSE CA 95112

VIEW 1



at&t



PHOTOSIMULATION

SET 1 - 12/17/18

POLE 1: SWAP (3) EXISTING ANTNNAS FOR (3) PROPOSED ANTENNAS  
POLE 2: INSTALL (6) PROPOSED ANTENNAS, INSTALL (9) PROPOSED RRUs

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VIEW 2



